



# Carbohydrate Research 303 (1997) I-II

# Author index

Ahrazem, O. 67 Arndt, E.R. 73 Atopkina, L.N. 449

Bacic, A. 79
Bahaddi, Y. 229
Baker, D.C. 303
Batley, M. 313
Bay, S. 25
Beaupère, D. 185
Beldman, G. 207
Benazza, M. 359
Bernabé, M. 67
Berthier-Vergnes, O. 25
Besson, J. 159
Biberovic, V. 25
Bilan, M.I. 93
Buckeridge, M.S. 233

Cai, M.-S. 261 Cai, T.-W. 113 Canceill, J. 379 Cantacuzène, D. 25 Catoire, L. 379 Chaix, C. 17 Chanet-Ray, J. 123 Chang, K.L.B. 327 Chisena, C. 303 Choquet-Farnier, C. 185 Chou, S. 123 Chu, C.K. 33 Cooperwood, J.S. 33 Craik, D.J. 79 Crombez-Robert, C. 359 Crombie, H.J. 233 Cysyk, R.L. 303

Defaye, J. 367 Demailly, G. 1, 359 Ding, Q. 193 Ding, X. 445 Domenech, J. 67 Du, J. 33 Dubois, E.P. 165 Dueñas-Chasco, M.T. 453

El Nemr, A. 267 Elyakov, G.B. 449 Engberts, J.B.F.N. 423 Espartero, J.L. 453

Farkas, E. 407 Fayet, C. 159 Fernández Cirelli, A. 119, 417 Finch, P. 339 Franco-Rodríguez, G. 435, 453 Fréchou, C. 1, 359 Fu, W.-R. 327

Gable, K.P. 255 Gadelle, A. 367 Galbraith, L. 245 Galema, S.A. 423 Galons, H. 229 García Fernández, J.M. 367 Gareil, P. 229 Gelas, J. 123, 159 Gidley, M.J. 233 Gil-Serrano, A.M. 435, 453 Goggin, K.D. 347 Gómez-Miranda, B. 67 Gorshkova, N.M. 333 Gorshkova, R.P. 333 Greenshields, R.N. 459 Greiling, H. 153 Guo, Z.-W. 373

Harangi, J. 407 Hasegawa, A. 131 Hayashi, K. 353 Hervé du Penhoat, C. 379 Hindsgaul, O. 51, 283 Hocquet, A. 379 Hodosi, G. 239 Hollingsworth, R.I. 103 Hosokawa, H. 131

Imbach, J.-L. 17 Irastorza-Iribas, A. 453 Ishida, H. 131

Jacquinet, J.-C. 395 Jánossy, L. 407 Jiménez-Barbero, J. 67 Jiménez Blanco, J.L. 367 Jullien, L. 379

Kandra, L. 407 Kiso, M. 131 Kitahara, K. 219 Knirel, Y.A. 333 Kock, R. 153 Kondo, H. 131 Kong, F. 445 Kováč, P. 239 Kovensky, J. 119 Kuster, B.F.M. 175 Lambert, J.F. 347
Lamrabet, Y. 435
Lay, L. 39
Leal, J.A. 67
Lee, J. 103, 327
Lehn, J.-M. 379
Lelièvre, F. 229
Li, H. 283
Liang, C. 33
Lichtenthaler, F.W. 293
Lièvre, C. 1
Lipták, A. 407
Liu, D. 313
Lotter, H. 165
Lu, P.-P. 283

Ma, T. 33 MacDougall, A.J. 251 Macedo, E.A. 135 Maeda, Y. 219 Maignan, J. 229 Malet, C. 51 Marin, G.B. 175 Mateo, P.T. 453 Megías, M. 435 Mendes, C.J.M. 233 Michaud, T. 123 Michon, V. 379 Mignet, N. 17 Min, J.-M. 113 Mohn, H. 417 Mondel, S. 293 Monville, L. 379 Mori, Y. 353 Morris, V.J. 251

Nagahama, T. 219 Nakahara, Y. 373, 373 Nazarenko, E.L. 333 Neszmélyi, A. 165 Ng, A. 459

Ogawa, T. 373 Ohnishi-Kameyama, M. 353 Olivieri, G. 319 Ono, H. 353

Packer, N.H. 313 Palcic, M.M. 283 Parker, R. 199 Parolis, H. 319 Parolis, L.A.S. 319 Penner, M.H. 255 Peres, A.M. 135 Piotto, M. 379 Pitson, S.M. 207 Piyachomkwan, K. 255 Pozsgay, V. 165 Praest, B.M. 153 Price, K.N. 303 Prieto, A. 67

Rayner, B. 17
Redmond, J.W. 313
Reeves, P. 313
Reid, J.S.G. 233
Reinhardt, S. 39
Ring, S.G. 199, 251
Rochepeau-Jobron, L. 395
Rodríguez-Carvajal, M.A. 453
Round, A.N. 251
Ruiz-Sainz, J.E. 435

Schmidt, R.R. 39 Senchenkova, S.N. 333 Shashkov, A.S. 93, 333 Sims, I.M. 79 Spaink, H.P. 435 Stasik, I. 185 Stevens, E.S. 73 Suganuma, T. 219

Tejero-Mateo, P. 435 Thiem, J. 417 Thomas-Oates, J. 435 Tokuyasu, K. 353 Tromp, R.H. 199 Tsai, G. 327 Tsuchiya, T. 267 Tuinman, A. 303

Usov, A.I. 93 Uvarova, N.I. 449

Van Doren, H.A. 423 Vieira, C.C.J. 233 Vincken, J.-P. 207 Vleeming, J.H. 175 Voragen, A.G.J. 207

Waldron, K.W. 459 Walinsky, S.W. 347 Wang, W. 445 Wilkinson, S.G. 245 Windmüller, R. 39

Yoon, J.H. 339

Zhang, L. 193 Zhang, L.-H. 113 Zhang, P. 193 Zhou, R.-L. 261 Zhou, Y. 193 Zhu, R. 193 Zhu, X.-X. 261 Zubkov, V.A. 333





# Carbohydrate Research 303 (1997) III-IX

# Subject index

4-Acetamido-4,6-dideoxyglucose

Structure of a phosphorylated polysaccharide from Shewanella putrefaciens strain \$29,333

Acetolysis

Synthesis of chromogenic substrates of  $\alpha$ -amylases on a cyclodextrin basis 407

Acetoxonium ion

Efficient synthesis of  $\alpha$ ,  $\omega$ -dibromodideoxyalditols as precursors for  $\alpha$ ,  $\omega$ -dithioalkylalditols 359

N-Acetylglucosaminyltransferase-V

Synthesis and evaluation of eight aminodeoxy trisaccharide inhibitors for N-acetylglucosaminyltransferase-V 283

Adaptation

Confirmation and complete <sup>1</sup>H and <sup>13</sup>C NMR assignment of the structure of peptidoglycan from *Sarcina ventriculi*, a highly adaptable Gram-positive bacterium 103

Affinity

p-Aminophenyl 1-thio-β-D-cellobioside: Synthesis and application in affinity chromatography of exo-type cellulases 255

AFM

Unexpected branching in pectin observed by atomic force microscopy 251

Agarose

Anhydro sugar and linkage contributions to circular dichroism of agarose and carrageenan, with conformational implications 73

Aggregation

Molecular weight and aggregation behaviour in solution of  $\beta$ -D-glucan from *Poria cocos* sclerotium 193

Alditols

Efficient synthesis of  $\alpha$ ,  $\omega$ -dibromodideoxyalditols as precursors for  $\alpha$ ,  $\omega$ -dithioalkylalditols 359

Aldohexoses

Synthesis, purification and liquid-crystalline behaviour of several alkyl 1-thio-D-glycopyranosides 423

Alpha-amylase

Study of the action of human salivary alpha-amylase on 2-chloro-4nitrophenyl  $\alpha$ -maltotrioside in the presence of potassium thiocyanate 219

Amino acid

Preparation and complexation ability of zwitterionic derivatives of cyclodextrins 229

Amino sugars

A mild one-step selective conversion of primary hydroxyl groups into azides in mono- and oligo-saccharides 367

Amphiphile

Synthesis, purification and liquid-crystalline behaviour of several alkyl 1-thio-D-glycopyranosides 423

α-Amylase substrate

Synthesis of chromogenic substrates of  $\alpha$ -amylases on a cyclodextrin basis 407

1,3-Anhydro-α-D-altropyranoside

Synthesis of thromboxane A2 models from glucose 417

Anhydro sugars

Anhydro sugar and linkage contributions to circular dichroism of agarose and carrageenan, with conformational implications 73

Antisense

Synthesis and evaluation of glucuronic acid derivatives as alkylating agents for the reversible masking of internucleoside groups of antisense oligonucleotides 17

Antiviral agents

Synthesis of L-ribofuranosyl C-nucleosides 33

L-Arabinose

Synthesis, purification and liquid-crystalline behaviour of several alkyl 1-thio-p-glycopyranosides 423

Arabinoxylan

Oxidative cross-linking of corn bran hemicellulose: formation of ferulic acid dehydrodimers 459

Arsonium ylides

Réaction d'aldoses partiellement protégés avec des ylures d'arsenic stabilisés: synthèse de dérivés insaturés E acycliques et de dérivés C-glycosyle 1

Aspergillus aculeatus

Action patterns and mapping of the substrate-binding regions of endo-(1 → 5)-α-1-arabinanases from Aspergillus niger and Aspergillus aculeatus 207

Aspergillus nige

Action patterns and mapping of the substrate-binding regions of endo-(1 → 5)-α-t-arabinanases from Aspergillus niger and Aspergillus aculeatus 207

Benzoylation

A simple access to lactose-derived building blocks required in glycoconjugate synthesis 39

Biotinylated T-antigen-serine

Unusual lactam formation occurring in the synthesis of a biotinylated T-antigen-serine derivative 25

Birch

Simplified preparation of the ginsenoside- ${\rm Rh}_2$  minor saponin from ginseng 449

 $\beta$ -lyxose

Manipulation of free carbohydrates via stannylene acetals. Preparation of  $\beta$ -per-O-acyl derivatives of D-mannose, L-rhamnose, 6-O-trityl-D-talose, and D-lyxose 239

B-mannose

Manipulation of free carbohydrates via stannylene acetals. Preparation of  $\beta$ -per-O-acyl derivatives of D-mannose, L-rhamnose, 6-O-trityl-D-talose, and D-lyxose 239

 $\beta$ -rhamnose,  $\beta$ -talose

Manipulation of free carbohydrates via stannylene acetals. Preparation of  $\beta$ -per-O-acyl derivatives of D-mannose, L-rhamnose, 6-O-trityl-D-talose, and D-lyxose 239

BuO

α- And β-hydrogen eliminations in the reactions of some 3-O-triflylglycosides with BuOK and pyridine 267

Calonectria

Structural elucidation of acidic fungal polysaccharides isolated from the cell-wall of genera Cylindrocladium and Calonectria 67

#### Carbene

α- And β-hydrogen eliminations in the reactions of some 3-O-triflylglycosides with BuOK and pyridine 267

# Carbohydrate oxidation

Oxidation of methyl and n-octyl  $\alpha$ -D-glucopyranoside over graphitesupported platinum catalysts: effect of the alkyl substituent on activity and selectivity 175

## Carbohydrates

The introduction of an hydrophobic chain on  $\alpha, \alpha$ -trehalose via the synthesis of acetals. The detergent properties of these derivatives 159

## Carboxylates

Oxidation of methyl and n-octyl  $\alpha$ -D-glucopyranoside over graphitesupported platinum catalysts: effect of the alkyl substituent on activity and selectivity 175

## Carrageenan

Anhydro sugar and linkage contributions to circular dichroism of agarose and carrageenan, with conformational implications 73

## Catalytic hydrogen transfer

A two step synthesis of 3-deoxy-D- or L-glycono-1,4-lactones and 2-O-alkyl-3-deoxy-D-glycono-1,4-lactones from D- or L-glyconolactones 185

#### β-Cellobiosyl fluoride heptaacetate

Thermal glycosylations: Reactions of  $\beta$ -cellobiosyl fluoride heptaacetate with tigogenin and its trimethylsilyl ether 347

#### Cellulose

A new family of oligosaccharides from the xyloglucan of *Hymenaea* courbaril L. (Leguminosae) cotyledons 233

#### Cell walls

Oxidative cross-linking of corn bran hemicellulose: formation of ferulic acid dehydrodimers 459

# Chemoenzymatic synthesis

Unusual lactam formation occurring in the synthesis of a biotinylated T-antigen-serine derivative 25

## Chitin

Heterogeneous N-deacetylation of chitin in alkaline solution 327

# Chitin deacetylase

Deacetylation of chitin oligosaccharides of dp 2-4 by chitin deacetylase from *Colletotrichum lindemuthianum* 353

### Chitin oligom

Deacetylation of chitin oligosaccharides of dp 2-4 by chitin deacetylase from *Colletotrichum lindemuthianum* 353

### Chitosan

Heterogeneous N-deacetylation of chitin in alkaline solution 327

# 2-Chloro-4-nitrophenyl α-maltotrioside

Study of the action of human salivary alpha-amylase on 2-chloro-4-nitrophenyl  $\alpha$ -maltotrioside in the presence of potassium thiocyanate 219

# Cholesterol-lowering agent

Thermal glycosylations: Reactions of  $\beta$ -cellobiosyl fluoride heptaacetate with tigogenin and its trimethylsilyl ether 347

# Chromatography

Synthesis, purification and liquid-crystalline behaviour of several alkyl 1-thio-D-glycopyranosides 423

## Circular dichroism

Anhydro sugar and linkage contributions to circular dichroism of agarose and carrageenan, with conformational implications 73

# Clinical assay

Study of the action of human salivary alpha-amylase on 2-chloro-4-nitrophenyl  $\alpha$ -maltotrioside in the presence of potassium thiocyanate 219

# Colletotrichum lindemuthianum

Deacetylation of chitin oligosaccharides of dp 2-4 by chitin deacetylase from Colletotrichum lindemuthianum 353

### Conformation

Studies on the synthesis of two tetrasaccharides and the reactivity difference between them 261

### Corallinaceae

Structure of a sulfated xylogalactan from the calcareous red alga Corallina pilulifera P. et R. (Rhodophyta, Corallinaceae) 93

#### Corallina pilulifera

Structure of a sulfated xylogalactan from the calcareous red alga Coralina pilulifera P. et R. (Rhodophyta, Corallinaceae) 93

#### Cotyledons

A new family of oligosaccharides from the xyloglucan of *Hymenaea* courbaril L. (Leguminosae) cotyledons 233

#### Cross-linking

Oxidative cross-linking of corn bran hemicellulose: formation of ferulic acid dehydrodimers 459

#### Cyclic disaccharide

Synthesis and X-ray crystallographic study of cyclobis-(1  $\rightarrow$  2)- $\alpha$ -D-glucopyranosyl peracetate 165

## Cyclobisglucosyl

Synthesis and X-ray crystallographic study of cyclobis- $(1 \rightarrow 2)$ - $\alpha$ -D-glucopyranosyl peracetate 165

#### Cyclodextrins

A mild one-step selective conversion of primary hydroxyl groups into azides in mono- and oligo-saccharides 367

Preparation and complexation ability of zwitterionic derivatives of cyclodextrins 229

Synthesis of chromogenic substrates of  $\alpha$ -amylases on a cyclodextrin basis 407

#### Cylindrocladium

Structural elucidation of acidic fungal polysaccharides isolated from the cell-wall of genera Cylindrocladium and Calonectria 67

#### Cytotoxicity

Simplified preparation of the ginsenoside-Rh $_2$  minor saponin from ginseng 449

#### L-9-Deazaadenosine

Synthesis of L-ribofuranosyl C-nucleosides 33

# 3-Deoxy-glycono-1,4-lactones

A two step synthesis of 3-deoxy-D- or L-glycono-1,4-lactones and 2-O-alkyl-3-deoxy-D-glycono-1,4-lactones from D- or L-glyconolactones 185

## Depolymerization

Effects of oxygen-derived free radicals on the molecular weight and the polydispersity of hyaluronan solutions 153

### Detritylation

Detritylation of mono- and di-saccharide derivatives using ferric chloride hydrate 445

## Deuterated compound

 $\alpha$ - And  $\beta$ -hydrogen eliminations in the reactions of some 3-O-tri-flylglycosides with <sup>1</sup>BuOK and pyridine 267

# α, ω-Dibromoalditols

Efficient synthesis of  $\alpha$ ,  $\omega$ -dibromodideoxyalditols as precursors for  $\alpha$ ,  $\omega$ -dithioalkylalditols 359

## 2,6-dideoxy

Synthesis of thromboxane A2 models from glucose 417

## Diferulic acid

Oxidative cross-linking of corn bran hemicellulose: formation of ferulic acid dehydrodimers 459

## Diffusion

Water diffusion in glasses of carbohydrates 199

## 2,6-Dioxabicyclo[3.1.1]heptanes

Synthesis of thromboxane A2 models from glucose 417

## Disaccharide

The effects of organic solvents on the synthesis of galactose disaccharides using  $\beta$ -galactosidases 339

# Disaccharide building blocks

A simple access to lactose-derived building blocks required in glycoconjugate synthesis 39

# α, ω-Dithioalkylalditols

Efficient synthesis of  $\alpha$ ,  $\omega$ -dibromodideoxyalditols as precursors for  $\alpha$ ,  $\omega$ -dithioalkylalditols 359

#### E. coli

Structural studies on the Shigella-like Escherichia coli O121 Ospecific polysaccharide 319

The relationship between the structures of the O polysaccharides from Escherichia coli O17 and O16 313

#### E-Aldooctenoates

Réaction d'aldoses partiellement protégés avec des ylures d'arsenic stabilisés: synthèse de dérivés insaturés E acycliques et de dérivés C-glycosyle I

#### E-Aldooctenonitriles

Réaction d'aldoses partiellement protégés avec des ylures d'arsenic stabilisés: synthèse de dérivés insaturés E acycliques et de dérivés C-glycosyle 1

#### Electrospray ionisation-mass spectrometry

Structural characterisation of galactoglucomannan secreted by suspension-cultured cells of Nicotiana plumbaginifolia 79

#### Electrospray-ionization mass spectrometry

Isolation and characterization by electrospray-ionization mass spectrometry and high-performance anion-exchange chromatography of oligosaccharides derived from hyaluronic acid by hyaluronate lyase digestion: Observation of some heretofore unobserved oligosaccharides that contain an odd number of units 303

#### a-Elimination

 $\alpha$ - And  $\beta$ -hydrogen eliminations in the reactions of some 3-O-tri-flylglycosides with  $^{4}$ BuOK and pyridine 267

#### **B**-Elimination

α- And β-hydrogen eliminations in the reactions of some 3-0-triflylglycosides with <sup>1</sup>BuOK and pyridine 267

#### Endo- $(1 \rightarrow 5)$ - $\alpha$ -L-arabinanase

Action patterns and mapping of the substrate-binding regions of endo-(1 → 5)-a-t-arabinanases from Aspergillus niger and Aspergillus aculeatus 207

#### Endo- $(1 \rightarrow 4)$ - $\beta$ -mannanase

Structural characterisation of galactoglucomannan secreted by suspension-cultured cells of Nicotiana plumbaginifolia 79

# Enzymatic synthesis

The effects of organic solvents on the synthesis of galactose disaccharides using  $\beta$ -galactosidases 339

## Enzyme inhibitors

Synthesis and evaluation of eight aminodeoxy trisaccharide inhibitors for N-acetylglucosaminyltransferase-V 283

### Exonolysaccharide

Structural analysis of the exopolysaccharide produced by Pediococcus damnosus 2.6 453

# Ferric chloride hydrate

Detritylation of mono- and di-saccharide derivatives using ferric chloride hydrate 445

### 5-Fluorouracil

Preparation and complexation ability of zwitterionic derivatives of cyclodextrins 229

# Fucosyllactose

A simple access to lactose-derived building blocks required in glycoconjugate synthesis 39

# Fungi

Structural elucidation of acidic fungal polysaccharides isolated from the cell-wall of genera Cylindrocladium and Calonectria 67

### Galactoelucomannan

Structural characterisation of galactoglucomannan secreted by suspension-cultured cells of Nicotiana plumbaginifolia 79

## **B**-Galactosidases

The effects of organic solvents on the synthesis of galactose disaccharides using  $\beta$ -galactosidases 339

# Galactosyl phosphate

Structure of a phosphorylated polysaccharide from Shewanella putrefaciens strain \$29 333

### Ganglioside

Synthesis of the 3'-C-carboxymethyl Lewis X derivative: a novel selectin blocker [3]

#### Gel

Oxidative cross-linking of corn bran hemicellulose: formation of ferulic acid dehydrodimers 459

#### Ginsen

Simplified preparation of the ginsenoside-Rh $_2$  minor saponin from ginseng 449

#### Ginsenoside

Simplified preparation of the ginsenoside-Rh $_2$  minor saponin from ginseng 449

#### Glasses

Water diffusion in glasses of carbohydrates 199

## Glucose syrups

Water diffusion in glasses of carbohydrates 199

#### B-Glucosidase

A new family of oligosaccharides from the xyloglucan of *Hymenaea* courbaril L. (Leguminosae) cotyledons 233

#### Glucuronic acid

Synthesis and evaluation of glucuronic acid derivatives as alkylating agents for the reversible masking of internucleoside groups of antisense oligonucleotides 17

#### D-Glucuronic acid

Chemical modification of glycosaminoglycans. Selective 2-sulfation of p-glucuronic acid units in heparan sulfate 119

#### Glyconolactones

A two step synthesis of 3-deoxy-D- or L-glycono-1,4-lactones and 2-O-alkyl-3-deoxy-D-glycono-1,4-lactones from D- or L-glyconolactones 185

### Glycosaminoglycan

Diastereoselective hydroboration of substituted exo-glucals revisited. A convenient route for the preparation of L-iduronic acid derivatives 395

## Glycosaminoglycans

Isolation and characterization by electrospray-ionization mass spectrometry and high-performance anion-exchange chromatography of oligosaccharides derived from hyaluronic acid by hyaluronate lyase digestion: Observation of some heretofore unobserved oligosaccharides that contain an odd number of units 303

## C-Glycosyl derivatives

Réaction d'aldoses partiellement protégés avec des ylures d'arsenic stabilisés: synthèse de dérivés insaturés E acycliques et de dérivés C-glycosyle l

### Heparan sulfate

Chemical modification of glycosaminoglycans. Selective 2-sulfation of p-glucuronic acid units in heparan sulfate 119

# Heterogeneous N-deacetylation

Heterogeneous N-deacetylation of chitin in alkaline solution 327

# High-performance anion-exchange chromatography (HPAEC)

Isolation and characterization by electrospray-ionization mass spectrometry and high-performance anion-exchange chromatography of oligosaccharides derived from hyaluronic acid by hyaluronate lyase digestion: Observation of some heretofore unobserved oligosaccharides that contain an odd number of units 303

# H-phosphonate methodology

Synthesis of lactosyl phosphate diester derivatives of nucleosides 113 Human salivary

Study of the action of human salivary alpha-amylase on 2-chloro-4-nitrophenyl  $\alpha$ -maltotrioside in the presence of potassium thiocyanate 219

## Hyaluronan

Effects of oxygen-derived free radicals on the molecular weight and the polydispersity of hyaluronan solutions 153

Isolation and characterization by electrospray-ionization mass spectrometry and high-performance anion-exchange chromatography of oligosaccharides derived from hyaluronic acid by hyaluronate lyase digestion: Observation of some heretofore unobserved oligosaccharides that contain an odd number of units 303

#### Hyaluronic acid

Isolation and characterization by electrospray-ionization mass spectrometry and high-performance anion-exchange chromatography of oligosaccharides derived from hyaluronic acid by hyaluronate lyase digestion: Observation of some heretofore unobserved oligosaccharides that contain an odd number of units 303

#### Hydroboration

Diastereoselective hydroboration of substituted exo-glucals revisited.

A convenient route for the preparation of L-iduronic acid derivatives 305

#### Hydrogenolysis

Synthesis of new enantiomerically pure polyhydroxylated azetidines from monosaccharides 123

#### 11 .8

Solid-phase synthesis of a glycosylated peptide fragment of the IL-8 receptor containing two vicinal oligosaccharide chains 373

#### Inclusion complexes

Preparation and complexation ability of zwitterionic derivatives of cyclodextrins 229

#### Internal glycosylation

Synthesis and X-ray crystallographic study of cyclobis-(1  $\rightarrow$  2)- $\alpha$ -D-glucopyranosyl peracetate 165

#### Intrinsic viscosity

Molecular weight and aggregation behaviour in solution of  $\beta$ -D-glucan from *Poria cocos* sclerotium 193

#### Iron(III) chloride hydrate

Detritylation of mono- and di-saccharide derivatives using ferric chloride hydrate 445

#### Kajibiase

Synthesis and X-ray crystallographic study of cyclobis- $(1 \rightarrow 2)$ - $\alpha$ -D-glucopyranosyl peracetate 165

## Lactam formation

Unusual lactam formation occurring in the synthesis of a biotinylated T-antigen-scrine derivative 25

### Lactose

A simple access to lactose-derived building blocks required in glycoconjugate synthesis 39

# Lactosyl phosphate diester

Synthesis of lactosyl phosphate diester derivatives of nucleosides 113 L-iduronic acid

Diastereoselective hydroboration of substituted exo-glucals revisited.

A convenient route for the preparation of L-iduronic acid derivatives 395

# Light scattering

Effects of oxygen-derived free radicals on the molecular weight and the polydispersity of hyaluronan solutions 153

Molecular weight and aggregation behaviour in solution of  $\beta$ -D-glucan from *Poria cocos* sclerotium 193

### Linkage analysis

Structural characterisation of galactoglucomannan secreted by suspension-cultured cells of Nicotiana plumbaginifolia 79

## N-Linked glycopeptide

Solid-phase synthesis of a glycosylated peptide fragment of the IL-8 receptor containing two vicinal oligosaccharide chains 373

### Lipo-chitin oligosaccharides

Structural determination of the lipo-chitin oligosaccharide nodulation signals produced by *Rhizobium fredii* HH103 435

### Lipopolysaccharide

Structural studies on the Shigella-like Escherichia coli O121 Ospecific polysaccharide 319

### Liquid crystal

Synthesis, purification and liquid-crystalline behaviour of several alkyl 1-thio-D-glycopyranosides 423

## Long-chain cyclic acetals

The introduction of an hydrophobic chain on  $\alpha$ ,  $\alpha$ -trehalose via the synthesis of acetals. The detergent properties of these derivatives 159

# Macrocyclic puckering

Dynamic behavior of a perfunctionalized  $\beta$ -cyclodextrin as probed by NMR and molecular modeling 379

#### Maltooligosaccharide derivatives

Synthesis of chromogenic substrates of  $\alpha$ -amylases on a cyclodextrin basis 407

#### Maltose

Water diffusion in glasses of carbohydrates 199

#### Me Si-O-tigogenin

Thermal glycosylations: Reactions of β-cellobiosyl fluoride heptaacetate with tigogenin and its trimethylsilyl ether 347

## Methyl α-D-glucopyranoside

Oxidation of methyl and n-octyl  $\alpha$ -D-glucopyranoside over graphitesupported platinum catalysts: effect of the alkyl substituent on activity and selectivity 175

## Microscopy, atomic force

Unexpected branching in pectin observed by atomic force microscopy 251

## Model compounds

Synthesis of thromboxane A2 models from glucose 417

#### Molecular diversity

Generation of molecular diversity on N-acetyllactosamine via Ocyanomethyl ethers 51

#### Molecular dynamics

Dynamic behavior of a perfunctionalized  $\beta$ -cyclodextrin as probed by NMR and molecular modeling 379

#### Molecular weight

Effects of oxygen-derived free radicals on the molecular weight and the polydispersity of hyaluronan solutions 153

Molecular weight and aggregation behaviour in solution of  $\beta$ -D-glucan from *Poria cocos* sclerotium 193

# Monosaccharide-fused azetidine

Synthesis of new enantiomerically pure polyhydroxylated azetidines from monosaccharides 123

## Muropeptide

Confirmation and complete <sup>1</sup>H and <sup>13</sup>C NMR assignment of the structure of peptidoglycan from *Sarcina ventriculi*, a highly adaptable Gram-positive bacterium 103

## N-acetyllactosamine

Generation of molecular diversity on N-acetyllactosamine via Ocyanomethyl ethers 51

# Nicotiana plumbaginifolia

Structural characterisation of galactoglucomannan secreted by suspension-cultured cells of *Nicotiana plumbaginifolia* 79

# NMR

Dynamic behavior of a perfunctionalized  $\beta$ -cyclodextrin as probed by NMR and molecular modeling 379

# NMR spectroscopy

Confirmation and complete <sup>1</sup>H and <sup>13</sup>C NMR assignment of the structure of peptidoglycan from *Sarcina ventriculi*, a highly adaptable Gram-positive bacterium 103

Structural elucidation of acidic fungal polysaccharides isolated from the cell-wall of genera Cylindrocladium and Calonectria 67

The relationship between the structures of the O polysaccharides from Escherichia coli O17 and O16 313

### Nod factors

Structural determination of the lipo-chitin oligosaccharide nodulation signals produced by *Rhizobium fredii* HH103 435

### Nuclear magnetic resonance

Structural characterisation of galactoglucomannan secreted by suspension-cultured cells of *Nicotiana plumbaginifolia* 79

#### L-C-Nucleoside

Synthesis of L-ribofuranosyl C-nucleosides 33

#### O17 antigen

The relationship between the structures of the O polysaccharides from Escherichia coli O17 and O16 313

## 1,2-O-cis-stannylene acetals

Manipulation of free carbohydrates via stannylene acetals. Preparation of  $\beta$ -per-O-acyl derivatives of D-mannose, L-rhamnose, 6-O-trityl-D-talose, and D-lyxose 239

## n-Octyl a-D-glucopyranoside

Oxidation of methyl and n-octyl  $\alpha$ -D-glucopyranoside over graphitesupported platinum catalysts: effect of the alkyl substituent on activity and selectivity 175

#### Oligodeoxynucleoside phosphorothioate and phosphorodithioate

Synthesis and evaluation of glucuronic acid derivatives as alkylating agents for the reversible masking of internucleoside groups of antisense oligonucleotides 17

#### Organic solvent

The effects of organic solvents on the synthesis of galactose disaccharides using  $\beta$ -galactosidases 339

## O-Specific polysaccharide

Structural studies on the Shigella-like Escherichia coli O121 Ospecific polysaccharide 319

#### p-aminophenyl 1-thio-β-D-cellobioside, cellobiohydrolose

p-Aminophenyl 1-thio-β-D-cellobioside: Synthesis and application in affinity chromatography of exo-type cellulases 255

#### Partially protected aldoses

Réaction d'aldoses partiellement protégés avec des ylures d'arsenic stabilisés: synthèse de dérivés insaturés E acycliques et de dérivés C-glycosyle 1

#### Pectin

Unexpected branching in pectin observed by atomic force microscopy 251

### Pediococcus damnosu

Structural analysis of the exopolysaccharide produced by *Pediococcus damnosus* 2.6 453

# Peptidoglycan

Confirmation and complete <sup>1</sup>H and <sup>13</sup>C NMR assignment of the structure of peptidoglycan from *Sarcina ventriculi*, a highly adaptable Gram-positive bacterium 103

## Phase equilibria

Phase equilibria of D-glucose and sucrose in mixed solvent mixtures: Comparison of UNIQUAC <sup>1</sup>-based models 135

# Phosphoramidite methodology

Synthesis of lactosyl phosphate diester derivatives of nucleosides 113 Plant cell culture

Structural characterisation of galactoglucomannan secreted by suspension-cultured cells of Nicotiana plumbaginifolia 79

## Platinum catalyst

Oxidation of methyl and n-octyl  $\alpha$ -D-glucopyranoside over graphitesupported platinum catalysts: effect of the alkyl substituent on activity and selectivity 175

## Polyhydroxylated azetidine

Synthesis of new enantiomerically pure polyhydroxylated azetidines from monosaccharides 123

### Polysaccharide

Molecular weight and aggregation behaviour in solution of β-D-glucan from *Poria cocos* sclerotium 193

Unexpected branching in pectin observed by atomic force microscopy

## Polysaccharides

Structural elucidation of acidic fungal polysaccharides isolated from the cell-wall of genera Cylindrocladium and Calonectria 67

### Polysaccharide structure

Structure of a phosphorylated polysaccharide from Shewanella putrefaciens strain \$29 333 The relationship between the structures of the O polysaccharides from Escherichia coli O17 and O16 313

#### Poria cocos

Molecular weight and aggregation behaviour in solution of  $\beta$ -D-glucan from *Poria cocos* sclerotium 193

#### Produce

Synthesis and evaluation of glucuronic acid derivatives as alkylating agents for the reversible masking of internucleoside groups of antisense oligonucleotides 17

#### Protection, selective

A simple access to lactose-derived building blocks required in glycoconjugate synthesis 39

#### 1 → 2 Proton-shift

α- And β-hydrogen eliminations in the reactions of some 3-O-triflylglycosides with BuOK and pyridine 267

## Pulsed amperometric detection (PAD)

Isolation and characterization by electrospray-ionization mass spectrometry and high-performance anion-exchange chromatography of oligosaccharides derived from hyaluronic acid by hyaluronate lyase digestion: Observation of some heretofore unobserved oligosaccharides that contain an odd number of units 303

#### Pyridin

α- And β-hydrogen eliminations in the reactions of some 3-O-triflylglycosides with <sup>1</sup>BuOK and pyridine 267

#### Rate constant

Heterogeneous N-deacetylation of chitin in alkaline solution 327 Reactivity

Studies on the synthesis of two tetrasaccharides and the reactivity difference between them 261

#### Red algae

Structure of a sulfated xylogalactan from the calcareous red alga Corallina pilulifera P. et R. (Rhodophyta, Corallinaceae) 93

# Reduction of tyrosine side-chain

Solid-phase synthesis of a glycosylated peptide fragment of the IL-8 receptor containing two vicinal oligosaccharide chains 373

## Regioselective bromination

Efficient synthesis of  $\alpha$ ,  $\omega$ -dibromodideoxyalditols as precursors for  $\alpha$ ,  $\omega$ -dithioalkylalditols 359

## Repeating unit

Structural analysis of the exopolysaccharide produced by *Pediococcus* damnosus 2.6 453

# Rhizobium fredii HH103

Structural determination of the lipo-chitin oligosaccharide nodulation signals produced by *Rhizobium fredii* HH103 435

### Saponin

Simplified preparation of the ginsenoside- $\mathbf{Rh}_2$  minor saponin from ginseng 449

### Sarcina ventriculi

Confirmation and complete <sup>1</sup>H and <sup>13</sup>C NMR assignment of the structure of peptidoglycan from *Sarcina ventriculi*, a highly adaptable Gram-positive bacterium 103

# Seaweed polysaccharides

Structure of a sulfated xylogalactan from the calcareous red alga Corallina pilulifera P. et R. (Rhodophyta, Corallinaceae) 93

### Selectin blocker

Synthesis of the 3'-C-carboxymethyl Lewis X derivative: a novel selectin blocker 131

### Selectivity

Oxidation of methyl and n-octyl  $\alpha$ -D-glucopyranoside over graphitesupported platinum catalysts: effect of the alkyl substituent on activity and selectivity 175

## Shewanella putrefaciens

Structure of a phosphorylated polysaccharide from Shewanella putrefaciens strain \$29 333

#### Shigella

Structural studies on the Shigella-like Escherichia coli O121 Ospecific polysaccharide 319

#### Sialyl-Lex

Synthesis of the 3'-C-carboxymethyl Lewis X derivative: a novel selectin blocker 131

## Solid-liquid equilibria

Phase equilibria of D-glucose and sucrose in mixed solvent mixtures: Comparison of UNIQUAC <sup>1</sup>-based models 135

## Solid-phase synthesis

Solid-phase synthesis of a glycosylated peptide fragment of the IL-8 receptor containing two vicinal oligosaccharide chains 373

## Stannylene complexes

Manipulation of free carbohydrates via stannylene acetals. Preparation of  $\beta$ -per-O-acyl derivatives of D-mannose, L-rhamnose, 6-O-trityl-D-talose, and D-lyxose 239

#### Stereochemistry

Synthesis, purification and liquid-crystalline behaviour of several alkyl 1-thio-p-glycopyranosides 423

## Stereoselective thermal glycosylations

Thermal glycosylations: Reactions of  $\beta$ -cellobiosyl fluoride heptaacetate with tigogenin and its trimethylsilyl ether 347

#### Structure

Confirmation and complete <sup>1</sup>H and <sup>13</sup>C NMR assignment of the structure of peptidoglycan from *Sarcina ventriculi*, a highly adaptable Gram-positive bacterium 103

Structural studies on the Shigella-like Escherichia coli O121 Ospecific polysaccharide 319

Unexpected branching in pectin observed by atomic force microscopy 251

# Subsite mapping

Action patterns and mapping of the substrate-binding regions of endo- $(1 \rightarrow 5)$ - $\alpha$ -L-arabinanases from Aspergillus niger and Aspergillus aculeatus 207

# Substituted exo-glucals

Diastereoselective hydroboration of substituted *exo-glucals* revisited. A convenient route for the preparation of L-iduronic acid derivatives 395

## Substrate binding site

Action patterns and mapping of the substrate-binding regions of endo-(1 → 5)-α-L-arabinanases from Aspergillus niger and Aspergillus aculeatus 207

### manno-Sucrosamine

manno- and altro-Sucrose, and some amino-analogues 293

### Sucrose

A mild one-step selective conversion of primary hydroxyl groups into azides in mono- and oligo-saccharides 367

# altro-Sucrose

manno- and altro-Sucrose, and some amino-analogues 293

## manno-Sucrose

manno- and altro-Sucrose, and some amino-analogues 293

### manno-Sucrose-2,3-epoxide

manno- and altro-Sucrose, and some amino-analogues 293

### Sugar analogs

Generation of molecular diversity on N-acetyllactosamine via Ocyanomethyl ethers 51

## Sugar azides

A mild one-step selective conversion of primary hydroxyl groups into azides in mono- and oligo-saccharides 367

## Sugar nucleotide

Synthesis of lactosyl phosphate diester derivatives of nucleosides 113 Sugar solution equilibria

Phase equilibria of D-glucose and sucrose in mixed solvent mixtures: Comparison of UNIQUAC <sup>1</sup>-based models 135

### Sulfated xylogalactan

Structure of a sulfated xylogalactan from the calcareous red alga Corallina pilulifera P. et R. (Rhodophyta, Corallinaceae) 93

## Sulfation

Chemical modification of glycosaminoglycans. Selective 2-sulfation of D-glucuronic acid units in heparan sulfate 119

#### Surfactants

The introduction of an hydrophobic chain on  $\alpha$ ,  $\alpha$ -trehalose via the synthesis of acetals. The detergent properties of these derivatives 159

#### T-Antigen

Unusual lactam formation occurring in the synthesis of a biotinylated T-antigen-serine derivative 25

# Ternary solubility

Phase equilibria of D-glucose and sucrose in mixed solvent mixtures: Comparison of UNIQUAC <sup>1</sup>-based models 135

## Tetrasaccharide

Studies on the synthesis of two tetrasaccharides and the reactivity difference between them 261

#### Thioetherification

Efficient synthesis of  $\alpha$ ,  $\omega$ -dibromodideoxyalditols as precursors for  $\alpha$ ,  $\omega$ -dithioalkylalditols 359

## Thioglycoside

Synthesis, purification and liquid-crystalline behaviour of several alkyl 1-thio-p-glycopyranosides 423

#### Thromboxane

Synthesis of thromboxane A2 models from glucose 417

#### Tigogenin

Thermal glycosylations: Reactions of  $\beta$ -cellobiosyl fluoride heptaacetate with tigogenin and its trimethylsilyl ether 347

## Tigogenyl $\beta$ -cellobioside

Thermal glycosylations: Reactions of  $\beta$ -cellobiosyl fluoride heptaacetate with tigogenin and its trimethylsilyl ether 347

## Tigogenyl $\beta$ -cellobioside heptaacetate

Thermal glycosylations: Reactions of  $\beta$ -cellobiosyl fluoride heptaacetate with tigogenin and its trimethylsilyl ether 347

## Transglycosylation

Study of the action of human salivary alpha-amylase on 2-chloro-4-nitrophenyl  $\alpha$ -maltotrioside in the presence of potassium thiocyanate 219

### Trehalose

The introduction of an hydrophobic chain on α,α-trehalose via the synthesis of acetals. The detergent properties of these derivatives 159 α,α-Trehalose

A mild one-step selective conversion of primary hydroxyl groups into azides in mono- and oligo-saccharides 367

### Trichoderma

p-Aminophenyl 1-thio-β-D-cellobioside: Synthesis and application in affinity chromatography of exo-type cellulases 255

### Triflate

 $\alpha$ - And  $\beta$ -hydrogen eliminations in the reactions of some 3-O-triflylglycosides with <sup>1</sup>BuOK and pyridine 267

### Trisaccharide analogs

Synthesis and evaluation of eight aminodeoxy trisaccharide inhibitors for N-acetylglucosaminyltransferase-V 283

## UNIQUAC

Phase equilibria of D-glucose and sucrose in mixed solvent mixtures: Comparison of UNIQUAC <sup>1</sup>-based models 135

### Unsaturation

 $\alpha$ - And  $\beta$ -hydrogen eliminations in the reactions of some 3-O-tri-flylglycosides with <sup>1</sup>BuOK and pyridine 267

### Wate

Water diffusion in glasses of carbohydrates 199

## X-ray analysis

Synthesis and X-ray crystallographic study of cyclobis-(1  $\rightarrow$  2)- $\alpha$ -D-glucopyranosyl peracetate 165

# Xyloglucan

A new family of oligosaccharides from the xyloglucan of *Hymenaea* courbaril L. (Leguminosae) cotyledons 233

# α-Xylosidase

A new family of oligosaccharides from the xyloglucan of *Hymenaea* courbaril L. (Leguminosae) cotyledons 233

# Zinc

Réaction d'aldoses partiellement protégés avec des ylures d'arsenic stabilisés: synthèse de dérivés insaturés E acycliques et de dérivés C-glycosyle 1